

DW-SRF 2013 Project
Green Project Reserve Calculation

Green Project Reserve Methodology using format from EPA's • June 22, 2009 guidance for GPR business cases

ESTIMATE OF VALUE OF WATER LOSS WORKSHEET

SRF PROJECT ID #	2013-22
1 Date:	25-Jul-13
2 PWSID #	ME0091300
3 System	PORTLAND WATER DISTRICT
4 Project Name	Main Replacement Project
5 Location	Longfellow & Deblois
6 Engineering Consultant	District
7 Existing Main size, age, and type	2" Galvanized Iron pipe installed 1939
8 Proposed New Water Main size and type	8" Ductile Iron cement lined pipe
9 New Main Pipe Length	1,150
10 Estimated Project Cost	\$ 200,000

Note: Data from Utilities Annual Report to Maine Public Utilities Commission

<u>Page</u>	<u>Line</u>	<u>Description</u>	<u>Units</u>	<u>2011 data</u>
W-12	15	Total Production Water	gallons per year	7,673,583,000
W-12	17	Total Revenue Water	gallons per year	6,465,814,000
W-12	19	Total Non-Revenue Water	gallons per year	1,207,769,000
W-12	19	Percent Non-Revenue Water		16%
W-12	22	Utility Usage - treatment	gallons per year	-
W-12	23	Utility Usage - hydrant flushing	gallons per year	15,631,000
W-12	14	Utility Usage - bleeders	gallons per year	97,792,000
W-12	26	Utility Usage - all other (running customers & blow-offs)	gallons per year	9,686,000
W-12	30	Fire Protection	gallons per year	61,434,000
W-12	31	Main Breaks	gallons per year	371,344,000
W-12	35	Flushing Mains	gallons per year	4,039,000
W-12	36	Total Accounted for Non-Revenue Water	gallons per year	559,926,000
W-12	37	Total Unaccounted Non-Revenue Water	gallons per year	647,843,000
		Estimated Water Loss From ALL Breaks, Leaks, & Bleeders	gallons per year	1,130,704,000
		<i>(PUC Accounts total of lines 14, 26,31,35 and 37)</i>		
		% of Water Loss of Total Production Water		15%
		<i>(PUC Lines 14,26,31,35,37 divided by Line 15)</i>		
W-9	9	Total Transmission Mains	feet	218,764
W-9	23	Total Distribution Mains	feet	5,063,307
		Total Mains in Service	feet	5,282,071
			miles	1,000
		<u>Estimated Distribution System Losses:</u>		
		Loss Water per mile of pipe	gallons per mile per year	1,130,261
		Loss Water per foot of pipe per year	gallons per foot per year	214
		Loss water per foot of pipe per day	gallons per foot per day	0.59
		<u>Water loss will vary with age of water main - assume Straight line projection as follows:</u>		
		0 to 25 year old pipe	0 % of Total Loss	gallons per mile per year -
		26 to 50 year old pipe	10% of Total Loss	gallons per mile per year 113,026
		51 to 75 year old pipe	30% of Total Loss	gallons per mile per year 339,078
		over 75 year old pipe	60% of Total Loss	gallons per mile per year 678,156
			All Losses:	1,130,261
		Age of Main to be replaced	years	100
		Length of Main to be Replaced	mile	0.22
		CALCULATED WATER LOSS - FOR PROPOSED PROJECT	gallons per year	73,852
W-2	29c	Total PRODUCTION COST of Water	\$/year	\$ 13,448,671
W-12	15	Total Production Water	1,000 gallons per year	7,673,583
		Production Cost of Water	per 1,000 gallons	\$ 1.75
		PROJECTED ANNUAL VALUE of WATER LOSS	per year	\$ 129

Annual Savings	\$	129
PV Factor (uniform series present worth factor (1%, 75 years):	\$	52.587
Present Value of Savings over Economic life of pipeline:	\$	6,806
Project Cost	\$	200,000
PV Percent of Project Cost:		3.4%
ESTIMATED % Green		3.4%
\$ Amount Green	\$	6,806